such sales by anyone not duly authorised; but even in such an event they cannot but view with alarm the attempt now being made to hold one person liable for a statutory offence committed by another, and to visit such liability with so severe a penalty as is contemplated, namely, deprivation. If it be right in the interest of the public that this new and grave responsibility should be imposed on medical practitioners this can only be done by Parliament, and after full consideration of the interests involved.

That in all the matters which have been already referred to the medical practitioners are in precisely the same position as members of the Pharmaceutical Society. They are entitled to employ unqualified assistants, but such assistants must not sell scheduled poisons. It is impossible to teach the business of dispensing without employing unqualified assistants, and, subject to the common law of responsibility of the shopkeeper for any blunders which the assistant may make, and the statutory responsibility of the salesman himself, there is no restriction upon the employment of such assistants, whether apprentices or not. The Memorialists cannot conceive that what is permissible on the part of a pharmaceutical chemist can be "infamous conduct in a professional respect" on the part of a medical practitioner.

That, in some quarters, the decision of the General Medical Council has been interpreted to mean that where an unqualified assistant has been convicted under the Pharmacy Acts of selling a scheduled poison, he should, in addition to the penalty imposed by Section XV of the Act of 1868, be subjected to the further penalty of instant dismissal at the hands of his employer, and that a failure on the part of an employer so to dismiss an offending assistant amounts to "infamous conduct in a professional respect." This view of the decision is open to the same objection as has been already urged—namely, that it adds a new and arbitrary penalty to the penalty imposed by Act of Parliament. But it is open to the further objection that failure on the part of the employer to do what no law requires, and what in many cases may be a very harsh act, is to be treated as infamous conduct. Speaking generally, no omission of that kind can properly be so characterised. Infamous conduct must consist of some overt act, not any omission. But, apart from this, it can never be infamous to omit to do what no law requires to be done. The Memorialists, therefore, respectfully submit that this matter should be reconsidered, and that whatever be the special circumstances justifying the decision in the case of the medical practitioner above referred to, no general doctrine should be laid down to the effect that the employment by a registered medical practitioner of an unqualified person to sell drugs and poisons is "infamous conduct in a professional respect."

It was also agreed that the following gentlemen be appointed a deputation to support the memorial before the General Medical Council: Dr. John Lindsay Steven, Dr. Russell, Dr. C. E. Robertson, Dr. David Young, Dr. William Watson, Dr. John Stewart, Dr. J. H. Nicol, and Dr. John Fraser Orr.

DEFECTIVE VACCINATION.

A VERY important letter from the Local Government Board on the subject of efficient and inefficient vaccination was published in the BRITISH MEDICAL JOURNAL of April 13th, p. 936. A public vaccinator, Dr. Christmas, desired to know whether in the course of his domiciliary work he would be at liberty to make only two insertions of lymph in place of four, where the parents refused to allow the latter number, and whether refusal by a parent to allow four insertions, but willingness to allow two, would constitute liability to prosecution under the Vaccination Acts. The Board's reply pointed out that the scheduled instructions in the Vaccination Order of 1898 include the following:

In all ordinary cases of primary vaccination the public vaccinator must aim at producing four separate good-sized vesicles or groups of vesicles not less than half an inch from one another. The total area of vesiculation resulting from the vaccination should not be less than half a square inch.

The letter then proceeded rather to modify the stringency of this instruction by saying that where any question arises as to vaccination being done in less than four places the operator

should in all ordinary cases use his best efforts to induce the parent to allow the child to be vaccinated in the manner referred to in the instructions, and should explain fully the reason.

Reference is then made to the importance the Royal Commission attached to sufficiency of vaccination, and to the evidence that, in regard to protection against small-pox,

there is a very marked contrast between those [persons] with four or even with three marks as compared with those with either one or two.

Notwithstanding this, in any case where refusal to allow more than two marks is persisted in, "the Board is not prepared to say that the public vaccinator should decline to vaccinate the child," though "it would regard as a serious dereliction of duty" any failure on the part of a public vaccinator to maintain the four-mark standard as a practice.

Such is the decision of the Board, and we regret to say that under the existing Acts of Parliament it is not easy to see how the Whitehall authorities could have gone further in their endeavours to maintain efficiency of vaccination. One of the worst of the various defects of the present law is that it lays down no standard of sufficiency of vaccination. The Board has done its best to see that public vaccinators do their best to maintain a high level in their work, but the practical difficulties in the way are often formidable. The responsibility for these difficulties lies partly with the public, partly with the medical profession, and partly with the Government.

Mothers ignorant of the importance of thoroughness of vaccination often ask, and sometimes importune, the vaccinator, whether public or private, to make only one or two marks instead of three or four. But some members of the medical profession are still more to blame in yielding to such solicitations. Indeed, cases can be cited of medical men having defended one-mark vaccination. At Portsmouth quite recently there has been a most deplorable example of this. It appears that attention had been publicly called to the prevalence of this practice there, and to the risks of small-pox run by children so imperfectly protected. Mr. John Mulvany, L.R.C.P., seems to have thought—perhaps with good reason—that the discussion had some relation to his own doings, and he contributed to a local newspaper a very extraordinary letter on the subject. After disclaiming mercenary motives and declaring (generously or suggestively) that he would not think of attributing such motives to the public vaccinator, "because he receives from the rates six shillings for each child he vaccinates," Mr. Mulvany writes:

I feel myself justly called upon to state the reasons why I hold in abhorrence the cruel and barbarous practice of vaccinating in four places and to point out the untold sufferings, diseases, and even death resulting to children of tender age from such vaccination.

While Mr. Mulvany objects to have dishonourable motives attributed to himself, he thus has no hesitation in describing as cruel and barbarous a practice which he must be well aware is followed by local men whom he describes as "professional brethren," as well as by public vaccinators and other medical men throughout the length and breadth of the land. He then, on the same lines, proceeds to dilate on what he regards as the effects of vaccination. The child is seized with

vaccinal fever, elevation of temperature, rapid pulse, restlessness etc. The pustules resulting from the vesicles tend further to lessen the vitality of the infant, and the greater the number of pustules the greater will be the absorption of deleterious matter. In cases of delicate and *strumous* children these pustules become ulcerated patches, difficult to heal, and the child, that needs all its strength to battle against infantile illnesses, soons falls a prey to diseases, infectious and otherwise.

Quite possibly such claptrap as this letter contains will help to bring to Mr. Mulvany for one-mark vaccination even more than the 1,400 children on whom we regret to learn he operated in that fashion last year. Independently of any question of motive, we take the liberty to discuss probabilities in the way of cause and effect. After enlarging as above on what he alleges to be the dangers of multiple marks, he proceeds:

In vaccinating in one place, not only am I carrying out the dictates of humanity in saving children from unnecessary pain and suffering, but I can also prove that one mark is as efficient as four or more.

He omits the proof, but that is a detail. His pathology, however, is no less remarkable than his practice. The micro-organism of small-pox and vaccinia has long been searched for by baffled bacteriologists, but Mr. Mulvany knows all about it.

Pathology proves that the blood is thoroughly impregnated by the bacilli, gaining admittance into the system through one mark or through ten.

Having thus explained this part of his subject, the learned letter-writer becomes statistical, and takes the opportunity of flavouring his figures with insinuation. In Portsmouth in 1899:

1,419 died under the age of 5 years. The majority of these were vaccinated. How many of those deaths were directly or indirectly due to vaccination I should like to ask?

It need hardly be added that Mr. Mulvany takes no notice of such figures as Marson and Gayton published, or as are given in the reports of the Royal Commission, demonstrating abundantly the importance of number or area of vaccination scars. Though the two small-pox hospital physicians just named gave the records of some 24,000 cases occurring in their own experience, Mr. Mulvany declares "the data given by way of statistics are insufficient to warrant credence." Here, however, we may be doing the Portsmouth letter-writer an injustice. He may never have heard of Marson or Gayton,

or of the Royal Commission on Vaccination. His letter gives no indication whatever that he has.

For the welfare of the public and the credit of the profession, we can only hope that there are among us few who would write like this.

His course of action, however, shows the necessity for definition of vaccination. Though, as we have said, the law is defective here, yet we did venture to hope when the conscience clause came into operation that it would help to put a stop to insufficient vaccination.

Where a foolishly nervous mother is influenced by antivaccination literature, or by such assertions and insinuations as appear above Mr. Mulvany's signature, it might be expected that a certificate of conscientious objection would be applied for, and that the vaccinator would insist that, if the operation were to be done at all, it would have to be done thoroughly. In face of the difficulty which the Local Government Board has evidently experienced here, it seems now evident, however, that the half-inch area of scar cannot always be insisted on, even by public vaccinators, and the only remedy is to be looked for in an alteration of the law. That is one of many points which have to be kept in view for the action which must be taken when the five years' experiment under which we live at present approaches its conclusion.

THE ITALIAN SOCIETY FOR THE STUDY OF MALARIA.

ON March 28th the Italian Society for the Study of Malaria held its third annual meeting in Rome, Signor FORTUNATO, the President, in the chair.

After a brief address by the President, Professor Celli read the scientific report for 1900. He said their work had been extended from the Roman Campagna to many other malarious regions of Italy, and their researches had included the epidemiology, pathology, therapy, and prophylaxis of malaria.

EPIDEMIOLOGY OF MALARIA.

For the epidemiological investigations a series of special experimental stations were instituted. The following are the results of the investigations:

1. Wherever malarial fevers exist there also exist the *Anopheles*, but not *vice versâ*. In its turn epidemiology confirms the opinion held by Ross, Grassi, Bastianelli, and Bignami against Koch, that the *Culices* do not take part in the propagation of human malaria.

2. All still collections of water, especially those which contain the so-called palustral vegetation, may be the habitat of *Anopheles* larvæ. The waters of lakes which remain at a constant depth, like those of Mantua, are not an exception; on the contrary, the waters which are to a certain degree putrid, salt, or sulphurous are an exception. Consequently the notion that putrefaction and the mixture of salt and fresh waters are local causes predisposing to malaria is shown to be unfounded. Thus also the waters in which hemp, and to a certain extent those in which flax, are macerated during and some time after the maceration kill the *Anopheles* larvæ; while, on the other hand, the rice fields, be the water stagnant, running, or intermittent, are always a favourite nest of these larvæ.

3. The geographical distribution of the three principal species of *Hæmosporidia* of human malaria is not very dissimilar in the various zones of the Italian continent. In general the parasite of the severe tertian, which in its turn is the most diffused from the tropics to the Italian Alpine valleys, predominates. The parasite of mild tertian is, as a rule, a little more abundant in Northern than in Southern Italy; that of the quartan is generally more scarce and more uniformly distributed than the others.

4. The quartan, mild tertian, severe tertian each have a special epidemic course. The quartan is the last to recur and the last to recommence; both the severe and mild tertian in Central and Southern Italy have an analogous but not identical cause, and especially in Northern Italy the mild tertian is the first and the only one to begin in the spring—hence the name of "spring" given to it—and reaches its height more quickly than the severe tertian called "augustan" or "æstivo-autumnal" fever. Consequently the epidemic year commences earlier in Northern than in Southern Italy, namely, in the spring, and ends earlier, that is, in October; while, on the other hand, from Central Italy downwards the true and proper epidemic season occurs in the second half of the year, and in some places reaches its maximum in October and November.

5. Proceeding from Germany to Southern Italy three principal epidemic types are met with—that of Northern Europe, that of Northern Italy, that from Rome southwards. They are chiefly differentiated by the fact that the epidemic year opens earlier and more quickly reaches its height the more we proceed towards the north. In the development of these several types various causes must concur, such as the predominance of one or another parasitic species, the habits of the mosquitos, the climatic conditions. Among these last it is known that the temperature controls the end of the epidemic but not how it controls the beginning according to the various types.

To clear up some obscure points the Society intends to institute other experimental stations in the Alpine, Venetian, and Pisan valleys, in some of the plateaus of the Central Apennines, Calabria, and the islands.

PATHOLOGY AND TREATMENT.

With regard to the investigations on the pathology and therapy of malaria, Dr. Dimisi has studied in the different types of malarial fevers the changes in number which the figured elements of the blood in the veins and in the small peripheral vessels undergo during the febrile attacks and at other times. He has proved that the variations in number of these elements of the blood are explained by the more or less severe transitory obstacles which occur, especially in the severe fevers, and are almost insensible in the mild tertian and the quartan.

Professor Celli with Drs. Panichi and Carducci, continuing his studies in immunity from malarial infection, has searched for the poisons in malarial blood, and especially the specific hæmolysins. Having as yet been unable to reach artificial immunity either by the antitoxins or the antihæmolysins, he has tried to reproduce it both experimentally and in practice on a large scale by means of medicinal substances slightly antimalarial, which can be taken for a long time without causing any disturbance. In this sense up till now a medicamental immunity against malaria by means of euchinin is the most possible, also according to the experiments made by Professor Dimattei in Sicily, and by other colleagues in the Pontine Marshes and the Tuscan Maremma.

Drs. Lomonaco and Panichi have continued their researches on the mechanism of action of quinine, and have also investigated a phenomenon well worthy of further researches, namely, the agglutinative power of malarial blood, with the hope of finding a quick and certain method for the diagnosis of even latent malaria. This would also facilitate the rational therapy and the better disinfection of the blood which is one of the means capable of preventing contagion.

PROPHYLAXIS.

With regard to prophylaxis, it was mentioned in the preceding report that Professor Celli had demonstrated on an extensive scale that the railway employees who live and work in the sphere of even the most severe malaria can be protected from the disease. During the past year he has extended his experiments not only on these persons, but also on the keepers of the Campagna and the peasants. In their turn in Southern Italy Professor Grassi at Albanella, Dr. Martirano at Lepantino have made similar experiments on the railway employees and always with brilliant results. Professor Fermi was equally successful in Sardinia. It has now, therefore, been placed beyond doubt that in practice it is possible to protect and save those who live and work in marshy places by defending them against the mosquitos.

THE SUPPLY OF QUININE.

Through the initiation of their President, Signor Fortunato, and some of the members of the Society, a Bill has been